ABSTRACT

A fluid ejection device includes a substrate. Nozzle chamber walls are arranged on the substrate and define a plurality of nozzle chambers. The substrate defines a plurality of fluid inlet channels in fluid communication with the nozzle chambers to supply fluid to the nozzle chambers. Drive circuitry is arranged on the substrate. A plurality of micro-electromechanical devices is positioned on the substrate. Each device includes an elongate actuator having a fixed end that is fast with the substrate and a working end that is displaceable along a path relative to the substrate to perform work. The actuator includes a pair of elongate arms that are spaced relative to each other along the path and are connected to each other at each end. One of the arms is connected to the drive circuitry to define a heating circuit and is of a material that is capable of expansion when heated, such that, when the heating circuit receives an electrical signal from the drive circuitry, that arm expands relative to the other to deform the actuator and thus displace said working end along said path. A fluid displacement member is fixed to the working end of the elongate actuator and is positioned in a respective nozzle chamber so that displacement of the working end and thus the fluid displacement member results in the ejection of fluid from the nozzle chamber.